

**SECTION ONE AMENDMENTS TO THE ORIGINAL SPECIFICATION OF RECORD  
IN PARAGRAPH FORM:****Amendments to Paragraph 4 of page 2:****Summary Of The Invention**

My invention discloses a pressure selector joy stick type mechanism including a tiltable lever operator which includes axial motion (push and pull movement) as well. The lever tilting motion selectively actuates a first array of four valves providing machine control ~~much the same as prior art joy stick pressure controllers. However my~~ My invention has connected to the lever a second cam actuator and two more arrays of four valves oriented ~~parallel to and circular~~ circularly about the lever, and near the second ~~cam~~ actuator. ~~Valves of the first parallel array actuate when the lever is pulled axially. Valves of the second parallel array actuate when the lever is pushed~~ Valves of the third array actuate when the lever is pushed axially. As can be understood, the invention fluidic controller can operate ~~more~~ many functions (has ~~broader~~ broad utility) when plumbed to machinery ~~then do prior art pressure joy stick controllers:~~ The invention lever operator can be tilted to control some machinery functions, and can be pulled to control other machinery functions, and can be pushed to control still other machinery functions.

**Amendments to Paragraph 1 of Page 3:**

Prior art pressure joy stick valves are ~~limited to tilted only control~~ sometimes limited to tilted axis only control of machinery, and must resort to (more complex and less intuitive) additional external valves to add additional machinery functional control.

**Amendments to Paragraph 2 of page 3 (error corrections noticed by examiner office action  
Sept 07, 2005)**

My invention has ~~an~~ the advantages of:

- i. costing less than prior art pressure joy stick valves with added valve operators
- ii. being more intuitive to control supported equipment pitch, roll, and elevation than prior art fluidic joy stick valves with added valve operators:

- a. intuitive because as the single lever is tilted to left / right roll is controlled
- b. intuitive because as the single lever is tilted forward / backward pitch is controlled
- c. intuitive because as the single lever is pulled / pushed elevation is controlled
- iv iii. being less costly, lighter weight, less complex, and thinner (to be positioned under machine structures) than are electric joy stick systems operating motorized jack screw positioners.

#### **Amendments to Paragraph 4 of pages 3,4**

##### **Description Of The Preferred Embodiments**

##### **1. The Invention Pressurized Fluid Controller Using Tilt / Push / Pull Operator Preferred Embodiment in General**

The view of FIG. 1 shows my invention "pressurized fluid controller using tilt / push / pull operator" referred to as numeral 25. Assembly 25 includes a housing 10, with four bores through which are attached ~~radial~~ a first set of four valves (three shown) 18a, 18b, 18c, 18d. The housing 10 includes an additional four bores through which are ~~attached four~~ more valves (three shown) 23a, 23b, 23c, 23d ~~facing longitudinally in one direction~~. The housing 10 includes a final four bores through which are attached ~~four final~~ a third set of four final valves (three shown) 20a, 20b, 20c, 20d ~~facing in the opposite longitudinal direction~~.

##### **Amendments to Paragraph 1 of page 6: (error correction noticed by examiner office action Sept 07, 2005)**

At best a good ~~complete~~ complete heavy equipment positioning system could include the four air bags 27a, 27b, 27c, 27d, the assembly 25 (controlling pitch, roll, and elevation); and the four air bearings 28 allowing minute / unimpeded / omni directional / and near frictionless floor XY movement of the equipment 24.

##### **Amendments to Paragraph 3 of page 6**

##### **2. Invention Construction Detail**

More details of the assembly 25 operation and construction show in the views of FIGS. 2 and 3. One construction of the housing 10 is machining out of metal or plastic in the shape of a square hollow tube near the knob 16 end. This shape easily allows for the drilling of four radial mounting holes to attach each of the four radial valves 18a, 18b, 18c, 18d with a nut 19. Each of the radial valves 18a, 18b, 18c, 18d can have a short cap 22 attached to each valve stem to increase the valve stem contact surface with the lever 15 to a diameter slightly less than the lever 15 diameter. The caps 22 can be attached to the stems with set screws (not shown). The caps 22 increased area is beneficial as it allows the lever 15 to more easily engage the particular valve 18a, 18b, 18c, 18d even if the lever's 15 approach angle is not exactly 90 degrees. The radial mounting hole location should be selected far enough away axially from the swivel joint 33 so the tilting movement of the lever 15 in the plane of the valves 18a, 18b, 18c, 18d about equals the valve stroke plus allowing about 1/16 inch clearance between the lever 15 and the attached valve cap 22.

**Amendments to Paragraph 1 of Page 7:**

The opposite end of the housing 10 can be a round hollow thick disc in shape, with thin walls as best shown in the views of FIG. 4, FIG. 3, and FIG. 2. This particular shape can accommodate easy axially attachment of each of the eight valves 23a, 23b, 23c, 23d, 20a, 20b, 20c, 20d in eight mounting holes with the nut 19. Also this housing 10 shape provides an axial a cavity between the stem tips of the valves 23a, 23b, 23c, 23d, and the stem tips of the valves 20a, 20b, 20c, 20d. This axial cavity space can accommodate the actuator 17. The actuator 17 can be attached to the lever 15 with a flat head screw (not shown). The internal length of the housing 10 cavity space should allow for the thickness of the actuator 17, plus the stem noses of all the valves 23a, 23b, 23c, 23d, 20a, 20b, 20c, 20d, plus a clearance of about 1/16 inch on each side of the actuator 17.

**Amendments to Paragraph 3 of Page 7:**

The fitting type (connection to a pressurized conduit 21a, 21b, 21c, 21d) throughout the system can be simple 10-32 gasket type barb tube fittings available in most hardware store outlets. The

interconnecting conduits 21a, 21b, 21c, 21d can be made from standard 1/8 inch inside diameter polyurethane tubing as the fluid flow rate for pressurized actuators is usually low nominal and 1/8 inch diameter porting can function well in the system.

**Amendments to Paragraph 5 of pages 11, 12 is deleted:**

~~9. Alternate Embodiment—Alternate Valve Quantities (not shown)~~

~~All the drawings of the previous embodiments showed designs which include arrays of four valves. There is no reason why the three valve arrays can't include other quantities of valves such as one, two, three, eight, etc. For example, if only the equipment 24 pitch control is desired (with no roll control); then the first array of radial valves would only need the valves 18a and 18b. As another example, if the equipment 24 to be roll, pitch and elevation controlled is supported upon air cylinders which include pilot actuated pressure dump valves, then the assembly 25 would need only the one valve 20a in the bottom (third array) as the valve 20a could be the pilot valve capable of dumping all four air cylinders thus lowering the equipment 24.~~

**Amendments to Paragraph 1 of Page 12 is deleted:**

~~9. Alternate Embodiment—Alternate Two Valve Arrays Instead of Three Valve Arrays (not shown).~~

~~All the previous assembly 25 configurations used three valve arrays (first radial set operated by the lever 15 tilting, the second axial set operated by the lever 15 pulling, and the third axial set operated by the lever 15 pushing). However, the third valve 20a, 20b, 20c, 20d array could be unnecessary if the second array of valves 23a, 23b, 23c, 23d used three position valves instead of two position. When using three position valves, as the lever 15 is pushed, all the three position valves 23a, 23b, 23c, 23d could shift to a position to exhaust all the air bags 27a, 27b, 27c, 27d of FIG. 5 thus lowering the equipment 24. Using three position valves, as the lever 15 is pulled, all the three position valves 23a, 23b, 23c, 23d could shift to a position to fill all the air bags 27a, 27b, 27c, 27d of FIG. 5 thus raising the equipment 24. As can be seen, if array of the valves~~

~~23a, 23b, 23c, 23d can control raising and lowering of the equipment 24, then the third valve array 20a, 20b, 20c, 20d can be eliminated.~~

**Amendments to Paragraph 2 of page12:**

For purposes of exemplification, particular embodiments of the invention have been shown and described to the best understanding thereof. However, other embodiments can include ~~other radial valves types, other multiple axial valve types and arrangements activated by a lever operator as~~ other valve types arranged in other positioning configurations activated by other configurations of lever operators as the lever operator is tilted, pulled, or pushed to accomplish a wide variety of pressurized actuator control, irrespective of particular structure configuration and materials without departing form the spirit and scope of the claimed invention.